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ABSTRACT

When employees develop cancer, businesses bear not only the direct medical costs of the disease, but also the indirect costs associated with lost work time, disability payments, loss of a trained employee, and retraining. Research has confirmed that aggressive prevention and screening programs can be, and indeed are, effective in limiting the number and severity of cancer cases. Primary prevention and early detection programs are two important ways of combatting cancer. Primary prevention programs can be aimed at reducing smoking, improving diet, and reducing exposure to occupational hazards. Early detection programs could concentrate on screening for breast, colorectal, uterine, and/or lung cancer. The National Cancer Institute has encouraged industry to offer health promotion programs and screening programs to employees, collaborate with employee groups to promote worksite health promotion programs, monitor employee use of measures to prevent exposure to carcinogens in the workplace, offer on-site food options congruent with cancer prevention, and develop insurance policies that reward risk-avoidance behaviors. (Twenty-three examples of companies that have developed cancer prevention programs and a list of resource organizations and materials devoted to cancer prevention are included in this document.) (MN)

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WBGH WORKSITE WELLNESS SERIES

CANCER PREVENTION PROGRAMS IN THE WORKPLACE

Prepared by

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WBGH Worksite Wellness Series

CANCER PREVENTION PROGRAMS IN THE WORKPLACE

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Ruth A. Behrens serves as director/editor for the WBGH Worksite Wellness Series.

CONTENTS

INTRODUCTION.....1
What is Cancer - Incidence and Trends.....2
Preventability of Cancer.....4
Economics of Workplace Cancer Prevention.....6
Cancer Prevention and Workplace Health Promotion...7

MAJOR CANCER PROBLEMS.....9
Lung Cancer.....10
Breast Cancer.....11
Colorectal Cancer.....13
Uterine Cancer.....14

WORKPLACE CANCER PREVENTION AND CONTROL STRATEGIES.....16
Primary Prevention.....18
    Smoking.....18
    Diet.....22
    Occupational Exposures.....25
Early Detection.....26
    Breast Cancer Screening.....28
    Colorectal Cancer Screening.....31
    Uterine Cancer Screening.....33
    Lung Cancer Screening.....34
    Summary of workplace Screening Efforts.....34

WORKPLACE CANCER PREVENTION ISSUES.....36
Why Do Cancer Prevention in the Workplace?.....36
What Should Companies Do?.....38
How Should Companies Do It?.....39

COMPANY EXAMPLES--WORKPLACE CANCER PREVENTION PROGRAMS.....43

REFERENCES--WORKPLACE CANCER PREVENTION PROGRAMS..53

RESOURCES--WORKPLACE CANCER PREVENTION PROGRAMS...56

CANCER PREVENTION PROGRAMS IN THE WORKPLACE

AN INTRODUCTION TO WORKPLACE CANCER PREVENTION AND CONTROL

Times and attitudes in the United States are changing. We are experiencing a cultural shift in the way we view health and disease. Traditional beliefs are being challenged. Individuals are taking more responsibility for their own health and new organizations are assuming leadership roles. Nowhere is this trend more obvious than it is in the workplace where cancer prevention is occurring.

Because of new knowledge and increased empowerment, people are starting to protect themselves from cancer by changing the way they eat, live, work, play, and seek medical care. People are beginning to "take control" of their lives and actively reduce their cancer risk.

This paper reviews the current level of practice of workplace cancer prevention and control.

- The first section reviews the facts, trends, and prevalence of cancer and the evidence on the preventability of the disease. Next, the impact of cancer in the workplace is reviewed, with particular emphasis on the economic implications and the importance of integrating cancer prevention and control efforts into a comprehensive employee health promotion program.
- The second section reviews the four major cancer sites with emphasis on the severity of the health problems, identified risk factors, and recommended screening procedures.
- The third section describes the major strategies for the prevention and control of cancer, particularly in the workplace.
- The final section discusses workplace cancer prevention

issues and provides specific recommendations for cancer control activities.

The report is followed by case studies of companies that have made a commitment to cancer prevention and a list of resources for additional information.

What is Cancer? - Incidence and Trends

What is Cancer? Cancer is not a single disease but a large group of diseases characterized by the uncontrolled growth of certain cells. While there are dozens of different types of cancers, all cancers have in common the production of abnormal cells that are capable of irregular and independent growth and that can invade healthy body tissue (Rosenbaum, 1983). If the spread of cancer cells is not controlled, it can result in death. However, many cancers can be cured or controlled if detected early and treated promptly.

Who Gets Cancer? Cancer is mainly a disease of adults, particularly of middle and old age, although it can strike at any age.

- More than half of all cases of cancer are diagnosed after age 65.
- Up to age 50, the incidence of cancer is higher in women; after age 60, there is a dramatic increase in cancer among men (NCI, 1985).
- The American Cancer Society (1986) estimates that in 1986, 930,000 Americans will be diagnosed as having cancer.
- About 73 million Americans currently alive--about 30 percent of the population--will eventually have cancer according to present disease rates.
- Cancer will strike approximately three out of every four families (ACS, 1986).

Not everyone is equally at risk for all types of cancers. Cancer incidence and mortality varies greatly by age, sex, race, and socioeconomic status.

- o NCI (1986) estimates that blacks have greater age-adjusted incidence and mortality rates than whites for most of the primary cancer sites.
- o In addition, blacks have a lower five-year survival rate than whites--38 percent versus 50 percent (NCI, 1986).

NCI researchers believe that these differences may not be innate, but primarily attributable to socioeconomic status, to health-related behavioral profiles, and to limited access to the health care delivery system. (NCI, 1986)

Who Will Die From Cancer? In 1986, 472,000 Americans will die from cancer and it is the second leading killer of Americans, surpassed only by heart disease.

- o One of every five deaths in the United States is due to cancer.
- o The age-adjusted national death rate for cancer has been steadily increasing from 143 per 100,000 in 1930 to 169 per 100,000 in 1983. This increase in cancer mortality over the last 50 years is primarily due to the rapid escalation of lung cancer deaths. Mortality rates for many other cancer rates are leveling off or, in some cases, declining (ACS, 1986). This gradual overall increase in the age-adjusted mortality rate for cancers has resulted in cirticism by some researchers (Bailar and Smith, 1986) of the magnitude of the existing emphasis on research on cancer treatment, and the recommendation of a shift in emphasis to research on cancer prevention.

The same factors that account for differences in cancer incidence also explain differences in cancer mortality. Thirty years ago,

the cancer death rates were virtually the same for blacks and whites. Since then, cancer death rates in whites have increased 10 percent, while black rates have increased 40 percent.

Preventability of Cancer

While there is no question that cancer is a major public health threat and it affects nearly every family in America, there is reason for hope. Recent studies (Doll and Peto, 1981) have established that many cancers are related to lifestyle or the environment and are, at least potentially, preventable. Additionally, it has been established that cancer mortality can be significantly reduced through specific preventive and medical actions.

The relationship between risk factors and mortality is illustrated in Table 1.

The belief in the preventability and treatment of cancer is so great that the National Cancer Institute (NCI) has set as its goal to reduce cancer mortality in the United States by 50 percent by the year 2000. To accomplish this, NCI is establishing a set of quantifiable objectives that will be used to direct and monitor cancer prevention and control programs. It is projected that if the national objectives are met in the area of smoking reduction, diet modification, occupational hazard reduction, screening and state-of-the-art treatment, the cancer mortality reduction goal will be reached.

Full implementation of these objectives will not only reduce cancer mortality, but also will limit cancer morbidity. If a cancer is actually prevented, there obviously is no illness. The workplace can both benefit from and contribute to this goal of cancer mortality reduction. Cancers among employees or dependents that are prevented or detected early can benefit a

Table 1

CAUSES OF CANCER MORTALITY

Percent of All Cancer Deaths

Factor or Class of Factors	Best Estimate	Range of Acceptable Estimates
Tobacco	30%	25-40
Alcohol	3	2-4
Diet	35	10-70
Reproductive and Sexual Behavior	7	1-13
Occupation	4	2-8
Pollution	2	1-5
Industrial Products	1	1-2
Medicines and Medical Procedures	1	0.5-3
Geophysical Factors	3	2-4

Source: Doll and Peto (1981), as quoted in NCI, 1986.

company's bottom line. Companies can contribute to the national effort to reduce cancer mortality by implementing the cancer prevention and control recommendations contained in this report (Table 8), and by making a commitment to disease prevention and health promotion programs in general.

Economics of Workplace Cancer Prevention

With 930,000 new cases and 472,000 fatalities in 1986, cancer exerts a very obvious and profound financial burden on American society. The National Center for Health Statistics estimated that of $219.4 billion spent on health care in 1980, six percent or $13.1 billion was spent on cancer care and treatment (NCI, 1985). In addition to these direct medical costs, in 1977 it was estimated that $26.4 billion in earnings were lost due to premature cancer mortality. Lung cancer deaths accounted for the largest portion of lost earnings: $6 billion dollars (NCI, 1985).

Corporations are very concerned about escalating health care costs and cancer costs are no exception. In 1983, the Blue Cross and Blue Shield Association estimated that the average American who died of cancer had more than $22,000 in medical bills during the final year of life (ACS, 1986). In a study commissioned by the American Cancer Society (Cancer News, 1982) it was estimated that a company would pay $54,000 for one case of invasive colon cancer in a mid-level employee and that the employee would lose $150,000 in earnings.

The American Cancer Society estimates that of the cancer cases that occur in the 15 to 64 year age group, 44 percent occur among employed individuals (ACS, 1981) with many of the others occurring among spouses, dependents and retirees. And of all cancer patients under 65, Blue Cross and private insurers pay the bill in over 77 percent of the cases (ACS, 1986). When an employee develops cancer, businesses bear not only the direct

medical costs of the disease, but also the indirect costs associated with time off the job, disability payments, replacement, and retraining.

Fortunately, medical expenditures for cancer care and treatment should not be considered fixed costs. Through aggressive prevention and screening programs, the number and severity of cancer cases can be limited. In the study commissioned by the American Cancer Society (Cancer News, 1982), it was estimated that an effective workplace prevention and control program had the potential of saving half the lives that would otherwise be lost without the program. In addition to the lives saved, companies could expect to save approximately 50 percent of the direct costs of cancer care. This analysis reported the maximum benefit that could be achieved by a completely effective intervention program that eliminated risk factors entirely. Actual results will depend upon the effectiveness of the specific programs and may be substantially less than maximum savings projected. While these numbers are projections and have not yet been achieved, the potential is promising and this type of analysis should serve as the basis for a well-managed workplace cancer prevention program.

Cancer Prevention and Workplace Health Promotion

Cancer is a prevalent, serious, and costly health problem that primarily afflicts adults and that is, to a great extent, preventable. Because of these characteristics, cancer prevention and control activities are becoming more frequently included in workplace wellness programs (DHHS, 1986).

Traditionally, the thrust of workplace wellness programs had been primarily cardiovascular disease prevention: aerobics, stress management, blood pressure control, and weight management. A recent national survey by the Department of Health and Human Services (DHHS, 1986) found that 44 percent of United States

worksites had at least one worksite-based health promotion activity and that the two most common activities were smoking cessation and health assessment--both of which play a large role in cancer prevention and control efforts. (Examples of companies with exemplary cancer prevention and control efforts are described in this paper's section on "Company Examples.")

Wellness programs are becoming increasingly popular and effective. A 1984 survey by Hewitt and Associates (1984) indicated that approximately one-third of major companies were conducting health promotion and preventive health care programs. These findings were confirmed by a similar survey conducted by the Business Roundtable (1985). A 1983 survey by TPF&C (1984) found that 60 percent of both employers and unions felt that wellness programs improve overall employee health and that specific risk factor reduction programs have a long-term cost containment impact. A 1985 survey by Mercer-Meidinger (1985) found that 90 percent of CEOs believe that health promotion programs can help control health care costs and that preventive care is underused by employers as a cost containment strategy.

While general cancer prevention activities are increasingly being offered in the workplace as part of wellness programs, the same cannot be said for efforts directed at preventing occupationally-related cancers. All too often cancers related to lifestyles are separated from cancers related to occupational exposures. The only difference between the two is the strategies used to prevent the cancer -- not whether or not it should be prevented. From the employee's perspective, the cause isn't important--only the prevention. While this paper does not focus on occupational cancers, it is recommended that employers control carcinogenic exposures whenever they exist and integrate occupational cancer prevention efforts with their overall cancer control program.

MAJOR CANCER PROBLEMS

There are literally dozens of different types of cancer and cancer sites. As was previously stated, cancer is a large group of diseases characterized by uncontrolled growth and spread of abnormal cells.

This section reviews the important facts associated with the four leading cancer sites:

- o lung,
- o breast,
- o colorectal, and
- o uterine.

This section does not discuss the other major types of cancer such as skin, oral, testicular and prostate, all of which have a significant impact on the overall cancer burden. The following four cancer sites have been identified by the ACS as the priority sites for intervention and, accordingly, should serve as the focus for workplace cancer control and prevention efforts.

A type of cancer that is not specifically addressed in this report, but one that is having an increasing impact on American businesses, is Kaposi's sarcoma--the deadly cancer associated with AIDS (Acquired Immune Deficiency Syndrome). Recently AIDS has reached epidemic proportions in the United States and is taking a particularly heavy toll on communities in major metropolitan areas such as New York, San Francisco, Miami, and Los Angeles. Employers in these areas are confronted with the tragic loss of young, valued employees who are often just establishing their careers. Besides this great loss of potential, businesses are confronted with escalating health care

costs, concerns over discrimination and, in some cases, general employee fear and hysteria associated with employees with AIDS or those suspected of having AIDS.

Lung Cancer*

Incidence: It is estimated that in 1986 there will be 149,000 new cases of lung cancer. The incidence rate for white males is dropping, but is increasing for black males and both black and white women.

Mortality: Lung cancer is the number one cancer killer of both men and women. An estimated 130,000 Americans will die of lung cancer in 1986. For the first time ever, lung cancer has now surpassed breast cancer as the leading cause of cancer deaths among American women.

The age-adjusted lung cancer death rate per 100,000 has increased dramatically during the last 30 years as can be seen in Table 2.

Table 2

AGE-ADJUSTED LUNG CANCER DEATH RATE PER 100,000

	1950-1952	1980-1982	Percent Change
Male	23.7	72.1	204%
Female	4.9	29.9	510%

This significant increase in lung cancer mortality is primarily responsible for the overall steady rise in the total cancer age-adjusted death rate.

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* The data presented in this section for lung cancer and the other priority cancer sites are derived primarily from the American Cancer Society publication, 1986 Cancer Facts and Figures.

Survival: Only 13 percent of lung cancer patients live five or more years after diagnosis. The survival rate is 41 percent for cases detected in a localized stage, but only 20 percent of lung cancers are discovered that early. Survival rates have improved only slightly over a recent 10-year period.

Risk Factors: Cigarette smoking is responsible for 85 percent of lung cancer cases among men and 75 percent among women--about 83 percent overall. In addition to cigarette smoking, exposure to certain industrial substances such as asbestos and coke oven emissions are risk factors for lung cancer. The combination of cigarette smoking and occupational exposure is particularly hazardous. The 1985 Surgeon General's Report states that the lung cancer risk for asbestos workers who smoke is greater than the sum of the independent exposures and is approximated by multiplying together the separate risks for smoking and asbestos exposure.

Early Detection: Lung cancer is very difficult to detect early; symptoms often don't appear until the disease has advanced considerably. The American Cancer Society has no specific guidelines for the early detection of lung cancer--rather it recommends that those who don't smoke should not start. Those who do smoke should stop.

Summary: Lung cancer is the leading cause of cancer deaths for both men (35 percent) and women (19 percent). It also is the most common cancer site for men (22 percent) and the second most common site for women (11 percent). The vast majority of lung cancer is attributable to cigarette smoking, and hence, preventable.

Breast Cancer

Incidence: It is estimated that there will be 123,000 new cases of invasive breast cancer among American women in 1986 and 900

cases among men. About one in 11 women will develop breast cancer at some time during her life.

Mortality: An estimated 40,000 deaths will occur in 1986. For women, breast cancer mortality is second only to deaths from lung cancer.

Survival: The five-year survival rate for localized breast cancer has risen from 78 percent in the 1940s to 90 percent today. Non-invasive breast cancer is almost never fatal; however, if the cancer has spread, the survival rate is 59 percent.

Risk Factors: Women who are over age 50, who have a personal or family history of breast cancer, who never had children, or who had their first child after age 30 are at increased risk of breast cancer. Risk for breast cancer may also be increased for obese people. And a high fat diet may be a factor in the development of breast cancer.

Early Detection: It is generally believed that breast cancer cannot be prevented and that it only can be detected early. A number of organizations, including the National Cancer Institute, the Office of Disease Prevention and Health Promotion (U.S. DHHS), and the American Cancer Society recommend specific early detection measures. While the recommendations often vary as to specific technique and frequency, all of these organizations believe in the value of early detection. The recommendations of the American Cancer Society are used in this section because of their extensive public education influence on the American public.

- The American Cancer Society recommends the monthly practice of breast self-examination (BSE) by women 20 years and older as a routine good health habit.

- The ACS also recommends a mammogram every year for asymptomatic women age 50 and over, and a baseline mammogram for those 35 to 39. Asymptomatic women 40 to 49 should have mammography every one to two years, depending on physical and mammographic findings, as well as other risk factors.
- In addition, a breast examination by a health professional is recommended every three years for women 20 to 40, and every year for those over 40.

Summary: For women, 26 percent of all cancer occurs in the breast. In fact, one in every 11 women will develop breast cancer during her lifetime. Breast cancer early detection programs, particularly BSE, are among the most popular workplace cancer control and prevention activities. Consequently, benefit plans should cover screening mammography according to the frequency outlined in the ACS guidelines.

Colorectal Cancer

Incidence: Colorectal cancer affects men and women about equally. An estimated 140,000 new cases will occur in 1986, including 98,000 cases of colon cancer and 42,000 cases of rectal cancer. The combined incidence of colon and rectal cancer is second only to that of lung cancer.

Mortality: An estimated 60,000 Americans will die of colorectal cancer in 1986--51,800 from colon cancer and 8,200 from rectal cancer.

Survival: When colorectal cancer is detected and treated early, the five-year survival rate is 90 percent for colon cancer and 80 percent for rectal cancer. This is compared with 51 percent and 38 percent respectively, after the cancer has spread to other parts of the body.

Risk Factors: There are a number of risk factors for colorectal cancer including, personal or family history of colon and rectal cancer, and personal or family history of colorectal polyps or inflammatory bowel disease. In addition, evidence suggests that colorectal cancer may be linked to diet. A diet high in fat and/or low in fiber content may be a significant causative factor.

Early Detection: The ACS recommends three tests for the early detection of colorectal cancer:

- o A digital rectal examination by a physician every year after age 40;
- o A stool blood slide test every year after 50;
- o A proctosigmoidoscopic exam every three to five years after the age of 50, following too annual exams with negative results.

Summary: Colorectal cancer is the second most common site of cancer and one that benefits the most from early detection. However, the early detection procedures are not well-followed and colorectal cancer is known as "the cancer no one talks about." The workplace is an ideal location to begin to change this attitude and to promote colorectal cancer early detection programs.

Uterine Cancer

Incidence: An estimated 50,000 new invasive cases will occur in 1986. This number includes 14,000 cases of cancer of the cervix and 36,000 cases of cancer of the endometrium (body) of the uterus. Cervical cancer incidence has steadily decreased over the years. It is most common today among low socio-economic groups, but all groups are at risk. Endometrial cancer mostly affects mature women and diagnosis is usually made between the ages of 50 to 64.

Mortality: In 1986, an estimated 6,800 deaths will occur from cervical cancer and 2,900 from endometrial cancer. Overall, the death rate from uterine cancer has decreased more than 70 percent during the last 40 years. Some of the reasons for the decline in mortality include regular usage of the Pap test, improved personal hygiene, and perhaps a decrease in the incidence of uterine cancer.

Survival: The five-year survival rate for cervical cancer is 62 percent. For patients diagnosed early, the rate is 80 to 90 percent. Survival for all stages of endometrial cancer is 84 percent, with a 92 percent survival for early detected cancers.

Risk Factors: For cervical cancer, the risk factors are early age at first intercourse and multiple sex partners. For endometrial cancer, the risk factors are history of infertility, failure to ovulate, prolonged estrogen therapy, and obesity.

Early Detection: The American Cancer Society recommends a Pap test once every three years after two initial negative tests one year apart. The ACS recommends that women at high risk of developing endometrial cancer have an endometrial tissue sample at menopause.

Summary: There has been a steady decrease in mortality due to uterine cancer, particularly cervical cancer. This decrease is partially due to the increased and regular use of the Pap test. Companies should provide female employees with opportunities for Pap testing at work or should reimburse for the expense of the Pap test through the benefit plan.

WORKPLACE CANCER PREVENTION AND CONTROL STRATEGIES

As previously stated, cancer is the second leading cause of death in America today and consumes billions in health care resources annually. Surprisingly, however, the majority of cancers are believed to be associated with lifestyle and environmental factors, and thus are potentially preventable. The National Cancer Institute (NCI) has set its goal as reducing cancer mortality by 50 percent by the year 2000. According to NCI,

> "....achievement of this goal depends on a reduction in smoking by 50 percent from 1980 levels, the adoption of prudent diet and screening measures, and accelerated and widespread application of gains in state-of-the-art cancer treatment methods." (NCI, 1986).

The National Cancer Institute's estimated reduction in cancer mortality by the year 2000 is shown in Table 3.

The following sections review the significant issues in the major areas of primary prevention and early detection programs. Although advances in treatment will play a significant role in reducing cancer mortality, the importance of medical treatment is outside the purview of this report and will not be reviewed.

Table 3

ESTIMATED REDUCTION BY YEAR 2000 IN CANCER MORTALITY RATE

Objective	Estimated Reduction[1] by Year 2000 in Cancer Mortality Rate (percent) Based on Achievement of the Objective
PREVENTION: DIET	
Fat reduction to 25% of total calories and Fiber increase to 20-30 grams per day	8%
PREVENTION: SMOKING	
Reduction in adult smoking prevalence to 16%	
--if achieved in year 2000	8%
--if achieved in year 1990	15%
SCREENING[2]	
Breast and cervical cancer objectives	3%
TREATMENT	
Application of current state-of-the-art treatment for specific cancer sites	
-- if no future changes in state-of-the-art occur	10%
-- if current trend in state-of-the-art survival (0.5%/year, all sites) is maintained	14%
-- if accelerated gains in state-of-the-art treatment (1.5%/year, all sites) occur	26%
Total range[3] of mortality reduction	25-50%

[1] Reduction calculated from the projected year 2000 rate. All rates age-adjusted to 1980.

[2] Females only.

[3] Range accounts for interdependence of objectives, e.g., the effect of breast cancer screening is reduced due to prevention.

Source: National Cancer Institute, 1986.

Primary Prevention

Smoking

Health Issues: The Surgeon General has stated, "Cigarette smoking is the chief, single, avoidable cause of death in our society and the most important public health issue of our time." Cigarette smoking is responsible for 83 percent of lung cancer--the leading cause of cancer death for both American men and women. Overall, it is estimated that cigarette smoking is responsible for 30 percent of all cancer deaths--cancer of the larynx, head, neck, esophagus, bladder, kidney, pancreas and stomach--in addition to cancer of the lung.

Thus, cigarette smoking accounts for approximately 130,000 cancer deaths annually. In addition to the cancer burden, smoking is also a major cause of heart disease and is associated with gastric ulcers, chronic bronchitis, emphysema, and a host of other chronic and debilitative disorders. All told, it is estimated that over 300,000 people die a year from cigarette smoking--the equivalent to three jumbo jet crashes a day (Warner, 1984).

The adverse health effects of cigarette smoking are directly related to the amount smoked, the duration of the smoking habit, the tar yield of the cigarette, the absence of filters and the depth of inhalation. Surprisingly, while most Americans are aware of the health risk of smoking, 40 percent of the public is not aware that smoking causes lung cancer and 20 percent do not know that it can cause cancer at all (ACS, 1986).

Fortunately, quitting smoking decreases the risk of lung cancer. The risk of lung cancer for smokers who quit is reduced by at least half within 10 years after cessation (Lubin et al, 1984) and, after 15 years or more, the risk of lung cancer is only slightly higher than that of non-smokers (NCI, 1986).

A related but distinct issue with particular relevance to the workplace is the health effects of second-hand smoke. While the data are not conclusive, preliminary evidence seem to indicate the potential of a health risk for those nonsmokers chronically exposed to second-hand smoke, especially those with pre-existing health conditions. Recent studies in Japan, France, Greece, and the United States all indicate an increased risk of lung cancer for the nonsmoking wives of smoking husbands. The health implications of second-hand smoke have been recently reviewed by Fielding (1985) and Eriksen (1986). It is recommended that the conclusion of the 1982 Surgeon General's Report be considered in developing strategies for the control of second-hand smoke in the workplace:

> "For the purpose of preventive medicine, prudence dictates that nonsmokers avoid exposure to second-hand tobacco smoke to the extent possible" (Surgeon General, 1982).

Current Prevalence and Trends: It is difficult to assess the exact prevalence of smoking among adults in America today; however, it is clear that the percentage of adults who are currently smokers has declined dramatically over the last twenty years. In 1965, 52 percent of men and 34 percent of women were smokers. Current estimates indicate that approximately 33 percent of men and 28 percent of women are smokers today. Overall, the percentage of adult smokers in America has dropped to at least 32 percent, according to the National Center for Health Statistics. The 1983 Gallup survey reported a smoking rate of 29 percent and preliminary data from the ACS Cancer Prevention Study II indicate that current cigarette smoking prevalence may be closer to 25 percent (Cancer News, 1986).

While a smaller percentage of adults are smoking, there are more heavy smokers (more than 25 cigarettes a day) than ever before. Table 4 reveals that among smokers, there is an increasing percentage of heavy smokers, for both men and women and for blacks and whites.

Table 4

PERCENTAGE OF SMOKERS SMOKING MORE THAN 25 CIGARETTES A DAY

	1965	1976	1980
White Men	26.0%	33.3%	37.3%
White Men	13.9	20.9	25.2
Black Men	8.6	10.8	13.8
Black Women	4.6	5.6	8.6

Source: Health Interview Survey, National Center for Health Statistics (NCI, 1986)

Workplace Implications: The National Cancer Institute estimates that if smoking prevalence is reduced to 15 percent by the year 2000, cancer mortality will be reduced by at least eight percent (Table 3). Given the potential of prevention and that smoking is considered by many to be the greatest single threat to the public health, it makes sense for smoking control to become a corporate priority.

A workplace smoking control program should include an effective corporate smoking policy, smoking cessation opportunities and technological changes, such as ventilation modification, when necessary. The Decision Maker's Guide to Reducing Smoking at the Worksite (1985) provides rationale and practical suggestions for implementing effective smoking control interventions. A workplace smoking control program will not only save lives, it also will save dollars. While estimates vary by a factor of ten--from $500 to $5000 additional per smoker per year--(Eriksen, 1986), most researchers concur that smoking employees cost their employers several hundred dollars more a year than their nonsmoking counterparts. For example, Rice (1986) estimates that

smoking accounts for eight percent of the total economic cost of illness. Add to this the cost of absenteeism, insurance, and maintenance, and the cost of workplace smoking becomes substantial.

Of particular interest to business is the relationship between smoking and occupational hazards. Tobacco smoke can combine with certain hazards to create a health risk many times greater than the independent risk from each hazard. The current Surgeon General's Report (1985) reviews the relationship between smoking and occupation and makes recommendations for workplace smoking control in hazardous environments.

The National Cancer Institute recommends the following steps be taken by business and industry to achieve the cancer reduction objectives for the nation:

By 1990:

- At least 65 percent of all workers (15 percent in 1979) should be offered employer/employee sponsored or supported smoking cessation programs either at the worksite or in the community.
- Laws should exist in all 50 states and in all jurisdictions establishing separate smoking areas at work.

By 2000:

- Develop and promote model nonsmoking standards as an integral part of worksite health promotion and fitness programs.
- Increase awareness of tobacco and smoking-related risks, especially in industries with high risk for cancer.
- Design smoking cessation programs for the underserved working population (migrant workers, recent immigrants, part-time workers, shift workers).

These National Cancer Institute objectives are helpful in planning smoking control activities and setting priorities. Other agencies, both federal and voluntary, have contributed to the development of goals, strategies and materials to control smoking.

Diet

Health Issues: Within the last few years, scientists and researchers have acknowledged that dietary habits are a major factor in cancer occurrence and that specific dietary modifications can have a significant impact on cancer prevention. Some researchers feel that diet is as large a cause of cancer as tobacco is. Doll and Peto (1981) estimate that 35 percent of all cancer is related to diet. According to the National Cancer Institute, there is scientific agreement that as much as 25 to 35 percent of cancer mortality is related to diet.

The National Cancer Institute observes that, while it is not possible to quantify the magnitude of the relationship nor specify the biological mechanisms, a variety of studies indicate that excessive fat intake, inadequate dietary fiber, and inadequate consumption of certain vitamins and minerals are associated with higher rates of certain cancers. Dietary factors are felt to be associated with cancers of the gastrointestinal tract (colon, rectum, pancreas, liver, esophagus, and stomach) and some sex-hormone-specific sites (breast, prostate, ovaries, and endometrium). The exact relationship is currently under study and more data should be available within the next ten years.

Current Prevalence and Trends: According to the National Cancer Institute (1986), the dietary habits of Americans have changed dramatically over the last 75 years. We are eating more meat, poultry, fish, dairy products, refined sugars, and sweeteners, fats and oils, and processed fruits and vegetables. We are

eating less grain products, potatoes, fresh fruits and vegetables, and eggs. This shift in consumption patterns has had a parallel effect on the proportion of nutrients in our diet as shown in Table 5.

Table 5

CHANGES IN UNITED STATES DIETARY NUTRIENT PROPORTIONS AS A PERCENT OF CALORIES PER CAPITA (1909 TO 1980)

	1909	1980
Fat	32%	43%
Carbohydrates	56%	45%
Protein	12%	12%

Source: Welch and Marston, 1982, as quote in NCI, 1986.

These data represent a 31 percent increase in the per capita use of fats and a 20 percent decline in the consumption of carbohydrates since the first decade of the century. The overall decline in carbohydrate consumption is accompanied by a 36 percent increase in sugar consumption, and a 50 percent drop in the consumption of grains and a 60 percent drop in potato consumption. Thus, Americans are consuming more dietary fat and fewer complex carbohydrates than was consumed at the turn of the century--dietary changes exactly the opposite of what would constitute a cancer prevention recommendation. Recent anecdotal data seem to indicate that U.S. dietary patterns are beginning to improve in relation to cancer prevention recommendations. It can be assumed that the recent emphasis on high fiber-low fat diets publicized by the American Cancer Society and the National Cancer Institute have stimulated this change.

Workplace Implications: The National Cancer Institute estimates that if dietary fat is reduced to 30 percent of daily calories or less and if fiber is increased to 20-30 grams per day, but no more than 30 grams, by the year 2000, there will be an eight percent reduction in cancer mortality (Table 3). This eight percent reduction translates into a:

- o 50 percent reduction in cancer of the colon and rectum (potential annual savings of 29,000 lives);
- o 25 percent reduction in cancer of the breast (potential annual savings of 9,000 lives);
- o 15 percent reduction in cancers of the prostate, endometrium, and gall bladder (potential annual savings of 4,500 lives).

It is important to note that these figures are estimates and that it is extremely difficult to precisely measure the potential reduction in cancer mortality due to dietary modifications. Nevertheless, migrant and international epidemiologic studies suggest that these lives can be saved if the dietary objectives are met.

The workplace can play an important role in meeting these national objectives. The workplace is the site of at least one, if not two, meals a day and most adults spend about half their working hours at work five days each week. Research is continuing to document that the workplace can be an effective site in which to deliver health promotion and disease prevention programs and that health messages and programs offered at work are often taken home. Nutrition education programs at the worksite can help employees learn about the role of diet in disease, make healthy food choices and maintain their ideal weight. In addition, the workplace can provide healthy food in company cafeterias and vending machines that reduce the risk of disease and promote health.

The Decision Maker's Guide to Nutrition Programs at the Worksite (1986), a special supplement of the Journal of Nutrition Education (Glanz, 1986), and the book Can You Prevent Cancer? (Rosenbaum, 1983) all provide specific information, examples, and resources to develop effective workplace nutrition education programs. In developing nutrition education programs for the workplace, it is suggested that the U.S. Dietary Guidelines be followed:

- Eat a variety of foods;
- Maintain desirable weight;
- Avoid too much fat, saturated fat, and cholesterol;
- Eat foods with adequate starch and fiber;
- Avoid too much sugar;
- Avoid too much sodium;
- If you drink alcohol, do so in moderation.

Occupational Exposures

Cancer that results from exposure to occupational carcinogens is an important health issue that must be included in a comprehensive approach to workplace cancer prevention and control.

According to Doll and Peto (1981), the proportion of cancer due to occupation is relatively low (approximately four to six percent of all cancers). However, for those who are exposed to workplace carcinogens, it is their greatest health risk and the elimination of the exposure should become the highest prevention priority.

NCI notes that it is difficult to precisely quantify the contribution of occupational exposures to the total cancer burden, the exact risk to workers who are exposed, and the risk associated with carcinogens that may permeate to the environment as pollutants. NCI suggests that "...the most effective

prevention efforts would likely come from a focus on preventing exposure to the known and strongly suspected human and animal carcinogens that have already been identified." (NCI, 1986) Where exposures do exist, they should be controlled through accepted industrial hygiene practice, which include engineering controls, changes in work practices and personal protective devices. The International Association for Research on Cancer's (IARC) list of industrial processes and chemicals causally associated with cancer in humans can be found in Table 6.

The National Cancer Institute considers occupational exposure to carcinogens a controllable risk factor, along with tobacco use and dietary factors. Accordingly, the control of occupational exposure to carcinogens should become an integral component to a comprehensive workplace cancer prevention program. The current Surgeon General's Report (1985) observes that those most likely to be exposed to occupational hazards are also most likely to smoke. Thus, an integrated approach that deals with all controllable risk factors seems likely to be most effective.

Early Detection

The purpose of early detection, or secondary prevention, is to find cancer before symptoms occur, and when treatment is most effective. Significant research goes into the establishment of screening recommendations for asymptomatic people; nevertheless, the effectiveness and frequency of recommended screening procedures is a major subject of debate.

Table 6

IARC LIST OF INDUSTRIAL PROCESSES AND CHEMICALS THAT ARE CARCINOGENIC FOR HUMANS

Industrial Processes and Occupations
Auramine manufacture
Isopropyl alcohol manufacture (strong-acid process)
Nickel refining
Underground hematite mining (with exposure to radon)

Chemicals and Groups of Chemicals
4-Aminobiphenyl
Arsenic and arsenic compounds
Asbestos
Benzidine
N, N-Bis (2-chloroethyl)-2-napthylamine (Chlornaphazine)
Bis (chloromethyl) ether and technical-grade chloromethyl methyl ether
Chromium and certain chromium compounds
Diethylstilboestrol
Melphalan
Mustard gas
2-Naphthylamine
Soots, tars, and oils
Vinyl chloride

Source: International Agency for Research on Cancer, as quoted in NCI, 1986.

The American Cancer Society recommends cancer screening procedures on an age-specific basis for three of the four major cancer sites: breast, cervical, and colorectal. Presently, however, the National Cancer Institute in its Cancer Control

Objectives for the Nation: 1985 - 2000 recommends screening only for breast and cervical cancer. At this time, the NCI does not feel that there has been adequate research documenting the clinical effectiveness of colorectal cancer screening. The varying recommendations, the current level of practice, and the implications for workplace programs are reviewed in the following section.

Breast Cancer Screening

Screening Guidelines: As previously mentioned, 26 percent of all female cancer occurs in the breast and one in 11 women will develop breast cancer in her lifetime.

The American Cancer Society recommends the following screening guidelines:

- The monthly practice of breast self-examination by women 20 years of age and older;
- Physical examination of the breast by a health professional every three years from the ages of 20 to 40 and then annually thereafter;
- A mammogram every year for women over age 50, and a baseline mammogram between ages 35 and 39. Women 40 to 49 should have mammography every one to two years depending on physical and mammographic findings.

The National Cancer Institute recommends:

- An annual physical breast examination by a health care professional for women age 50 to 70;
- An annual mammogram for women age 50 to 70.

The National Cancer Institute feels that there is insufficient evidence to make definitive statements about the efficacy of annual physical examinations and mammograms for women under 50.

NCI also believes that, while there is indirect evidence, there is no general agreement about the effectiveness of BSE in reducing breast cancer mortality.

In attempting to reconcile these two different sets of breast cancer screening guidelines, it must be remembered that the more conservative NCI recommendations are not based on data showing that BSE and mammography for women under age 50 and BSE are ineffective; but rather the recommendations are based on the fact that sufficient data do not exist to justify their inclusion into the screening guidelines. For example, the research studies showed a small reduction in mortality for mammograms for women under 50; however, the reduction was not statistically significant. Similarly with breast self-examination, indirect evidence and intuition support the value of BSE, but the research has not been done to prove its efficacy.

This distinction is important and has major implications for workplace screening priorities. While the definitive research has yet to be conducted, many corporations are following the more liberal American Cancer Society guidelines on the basis that the procedures have not been shown to be ineffective and they cause no harm. Thus, it is felt that is it prudent to follow the ACS guidelines in the absence of conflicting data. This difference between screening guidelines exists for colorectal cancer recommendations as well as for breast cancer.

Current Level of Practice: Although there is debate on some of the elements of breast cancer screening guidelines, both the NCI and ACS recommend an annual mammogram for women 50 years of age and over. Unfortunately, the current level of practice is substantially below the recommended levels. According to a 1983 Gallup Survey conducted for the American Cancer Society, while 72 percent of women in this age group were aware of mammograms, only 41 percent had ever had a mammogram and only 15 percent of women 50 and over reported having an annual mammogram. Only 13 percent

of women in the 40 to 49 year age group reported having a mammogram within the last two years (ACS recommendation).

A slightly higher level of compliance exists for breast physical examination by a health professional. Eighty-six percent of women over 40 (ACS recommended age for annual professional exams) were aware of the importance of professional exams; 78 percent had had a professional examination; and, 45 percent reported having a medical examination of the breast annually.

The American Cancer Society recommends monthly breast self-examination by women 20 years of age and older. According to the Gallup survey, 80 percent of women report having done BSE at least once in the past. Only 27 percent report performing BSE regularly once a month.

Reasons for Not Following Guidelines: Knowing the current level of practice helps set realistic goals and objectives for compliance with future screening programs. Of equal importance is understanding why people comply or don't comply with screening guidelines. While there is not a lot of data on this topic, the 1983 Gallup survey provides some insight.

When questioned about their attitudes toward mammography, 30 percent of all women (38 percent of women 50 and over) felt that mammography was a safe method of cancer detection and they would not hesitate to have it. In contrast, 27 percent of all women (20 percent of women 50 and over) felt that there was some risk in having X-rays and they would only have a mammogram if absolutely necessary.

The Gallup survey also collected data on why women did not perform BSE. The major reasons are as follows:

- 33% Let MD do the examination: that's what I pay a doctor for.
- 17% No need: too young to have cancer; good health.
- 16% Not qualified: lack of knowledge; I don't feel competent enough.
- 13% Never worry about it: it's unnecessary; it doesn't worry me.
- 9% Don't take the time: too much bother.

Finally, some researchers believe that compliance with public health measures is partially a function of personal risk assessment of susceptibility to the disease. The Gallup survey 1984 found that only six percent of the women surveyed accurately knew the probability of developing breast cancer (one in 11). Of more significance, only 12 percent of the respondents felt the odds to be greater than one in 11; 56 percent felt the chances to be less than what they actually are; and, 26 percent couldn't estimate. Thus, 82 percent of women either can't estimate or underestimate their risk of developing breast cancer.

The implications of these results have a significance for developing workplace health education programs aimed at increasing the compliance with breast cancer screening guidelines and will be discussed in more detail in the next section.

Colorectal Cancer Screening

Screening Guidelines: As was mentioned in the previous section, there are professional differences of opinion on the recommended procedures to be included in colorectal cancer screening guidelines. The ACS recommends the following:

- A digital rectal examination by a physician every year after age 40;

- o A stool blood slide test every year after 50;
- o A proctosigmoidoscopy every three to five years after the age of 50, following two annual exams with negative results.

The National Cancer Institute, following more stringent rules of evidence, concludes that there is no general agreement that colorectal cancer screening definitely reduces cancer mortality; thus, NCI does not include colorectal cancer screening in its recommendations. At the same time, NCI acknowledges that mathematical models of colorectal screening suggest that following the ACS guidelines could reduce colorectal cancer mortality by 40 percent. Thus, for the remainder of this section, the ACS guidelines will be considered.

Current Level of Practice: As is the case with breast cancer screening, the current level of practice for colorectal cancer screening is well below the recommended levels. Forty-two percent of adults are aware of the stool blood test and 20 percent report having taken the test at least once. However, only 14 percent of men 50 and over and 10 percent of women in this age category (the ACS recommended age group) report doing a stool blood test annually (Gallup, 1984).

Regarding the proctosigmoidoscopic examination, 49 percent of adults have heard of the exam and 23 percent have had a "procto." Among adults aged 50 and older, for whom this test is recommended, 32 percent have had the test. Of adults 50 and over, 18 percent reported they had a "procto" every five years or more often. (Gallup, 1984)

Fifty-eight percent of adults are aware of the digital rectal examination and 42 percent have had at least one. For those 40 and over, 21 percent of both men and women have a digital rectal examination annually. (Gallup, 1984)

Reasons for Not Following Guidelines: The Gallup survey results indicate that as with breast cancer, the general public underestimates the probability of developing colorectal cancer. Only about eight percent of men and women correctly estimated their risk (1 in 20) and 12 percent overestimated it. The remainder of the sample underestimated (32 percent said less than 1 percent in 100) or had no idea of their risk.

Regarding knowledge of factors which contribute to a higher risk of colon cancer, the data indicates that the public is fairly well informed. Some misconceptions exist, however; specifically, some people feel that smoking, stress, overweight, and lack of exercise are risk factors for the disease.

Uterine Cancer Screening

Screening Guidelines: The recommendations for uterine cancer screening are similar for the American Cancer Society and the National Cancer Institute. Both recommend a Pap test every three years. The ACS suggests the three-year frequency after two initial negative tests one year apart, while NCI simply recommends a Pap test every three years. In addition, the ACS recommends that women at high risk of developing endometrial cancer have an endometrial tissue sample at menopause.

Current Level of Practice: Approximately 89 percent of all women are aware of the Pap test and 84 percent reported having had at least one. Of women 20 to 39, 79 percent have had a Pap test within the last three years, while 57 percent of women 40 and older reported doing so. Thus, younger women are much more likely to have the test performed according to the guidelines.

Reasons for Not Following Guidelines: The 1983 Gallup survey did not ask questions regarding knowledge, attitudes, or perceived risk relative to uterine cancer. Perhaps this is a function of

the relative acceptance of the procedure and an indication of the type of acceptance which should be sought for the other cancer screening measures.

Lung Cancer Screening

Screening Guidelines: Both the American Cancer Society and the national Cancer institute agree that there is no effective method for screening for lung cancer. Both groups emphasize that a focus should be placed on primary prevention, such as helping smokers stop and keeping non-smokers from starting.

Summary of Workplace Cancer Screening Efforts

Both the National Cancer Institute and the American Cancer Society agree on the importance of cancer screening programs for breast and cervical cancer. Neither organization recommends screening programs for the early detection of lung cancer. While the American Cancer Society recommends colorectal cancer screening, the National Cancer Institute feels there is insufficient scientific evidence to prove that colorectal screening definitely reduces cancer mortality, although it recognizes the potential for a significant reduction in mortality.

Regardless of the specific recommendations, the overall level of utilization of cancer screening procedures by the American public is low (Table 7) with no trend toward increased utilization. The workplace can help rectify this situation. By integrating cancer screening procedures into workplace wellness programs, educating employees about the importance of early detection, and by redesigning benefit plans to reimburse for recommended cancer screening procedures, businesses can increase the utilization of early detection procedures among their employees and dependents.

Table 7
1990 AND 2000 OBJECTIVES FOR SCREENING PARTICIPATION

Screening Site and Technique	Age	Recent Participation 1980	Recent Participation 1983	Objectives 1990	Objectives 2000
		(Percent)			
BREAST: Physical Exam-- Annually	50-70	43%	45%	70%	80%
BREAST: Mammography-- Annually	50-70	14	15	45	30
CERVIX: Pap Smear--	20-39	76	79	85	90
Every 3 years	40-70	65	57	70	80

Source: Public Awareness and Use of Cancer Detection Tests: 1980 and 1983 Surveys, The American Cancer Society. As quoted in NCI, 1986.

The recent survey by the Department of Health and Human Services (1986) indicates that companies are beginning to offer cancer screening programs as part of their overall health assessment programs. The survey estimated that six percent of all worksites in America offer cancer screening programs. Of those worksites that offer cancer screening, three-fourths test for blood, 60 percent offer Pap smears, 40 percent offer skin cancer detection, nearly 60 percent offer professional breast exams and teach breast self-examination, while only one-third do mammography.

By offering screenings, corporations will reduce the medical costs of cancer cases, increase the probability of survival of those employees and dependents who develop cancer, and contribute significantly to the reduction of cancer mortality by the year 2000.

WORKPLACE CANCER PREVENTION ISSUES

Why Do Cancer Prevention in the Workplace?

As this paper has illustrated, cancer is a prevalent, serious, and costly health problem that is, for the most part, preventable. In 1986, 930,000 new cases of cancer will develop and 472,000 fatalities will occur. Billions of dollars are spent annually on cancer-related medical care and services and additional billions in lost earnings are wasted. These personal and financial losses fall mainly upon business. Forty-four percent of cancer in the 15 to 64 year age group occurs among employed Americans. Seventy-seven percent of cancer in people under 65 years of age is paid for by private insurers. The lost earnings hurt the general economy, as well as individual businesses and families.

It is not only for these reasons that business and industry should become involved in workplace cancer prevention. It is because much of this waste of human and financial resources is unnecessary and can be prevented through concerted and cooperative efforts. The National Cancer Institute has developed a national strategy (Table 8) to cut cancer mortality in half by the year 2000. NCI cannot accomplish this by itself. It needs the cooperation of the public, communities, health care providers, and the private sector.

To achieve the national objective of reduced cancer mortality, it is incumbent upon employers that the workplace become a focal point for cancer prevention and control strategies. Cancer prevention is good for the employee, company, economy, and country; and as a priority, its time has come.

Table 8

NCI CANCER CONTROL OBJECTIVES: SUMMARY

CONTROL ACTION	CONTROL TARGET	RATIONALE	YEAR 2000 OBJECTIVE
PREVENTION	SMOKING	The causal relationship between smoking and cancer has been scientifically established.	o Reduce the percentage of adults who smoke from 34 percent (in 1980) to 15 percent or less. o Reduce the percentage of youths who smoke by age 20 from 36 percent (in 1983) to 15 percent or less.
	DIET	Research indicates that high-fat and low-fiber consumption may increase the risk for various cancers. In 1983 NAS reviewed research on diet and cancer and recommended a reduction in fat; more recent studies lead NCI to recommend an increase in fiber. Research is underway to verify the causal relationships and to test the impact on cancer incidence.	o Reduce average consumption of fat from 40 percent to 25 percent or less of total calories. o Increase average consumption of fiber from 8-12 grams per day to 20-30 grams per day.
SCREENING	BREAST	The effectiveness of breast screening in reducing mortality has been scientifically established.	o Increase the percentage of women aged 50-70 who have an annual physical breast exam coupled with mammography to 80 percent from 45 percent for physical exam alone and 15 percent for mammography.
	CERVIX	The effectiveness of cervical screening in reducing mortality has been scientifically established.	o Increase the percentage of women who have a Pap smear every 3 years to 90 percent from 79 percent (ages 20-39) and to 80 percent from 57 percent (ages 40-70).
TREATMENT	Transfer of Research Results to Practice	NCI review of clinical trial and SEER data indicates that, for certain cancer sites, mortality in SEER is greater than mortality experienced in clinical trials.	o Increase adoption of state-of-the-art treatment.

What Should Companies Do?

There are a number of specific cancer prevention and control recommendations described in this paper. Table 8 highlights the national cancer control objectives and the rationale behind their development. Specific tactics for prevention activities and screening programs are presented in this paper's section on "Workplace Cancer Prevention and Control Strategies."

In summarizing their recommended actions, the National Cancer Institute (1986, p. I-19) encourages private industry to:

- Offer health promotion programs and screening programs to employees;
- Collaborate with employee groups to promote worksite health promotion programs;
- Monitor employee use of measures to prevent exposure to carcinogens in the workplace;
- Offer on-site food options congruent with cancer prevention;
- Develop insurance policies that reward risk-avoidance behavior.

In addition to these general action items, it is important to remember to integrate cancer prevention and control programs into existing workplace wellness and health promotion programs. Programs need to emphasize the concept of general health and well-being and to address all the major health risks. By and large, cancer prevention recommendations are very consistent with heart disease prevention recommendations, particularly in the area of nutrition and smoking. In fact, the concept of "a diet for health," regardless of specific disease risk, is beginning to evolve.

How Should Companies Do It?

First of all, companies should embrace the national objective of reducing cancer mortality and clearly understand the stated objectives and the recommended actions.

Secondly, companies should have an idea of their particular cancer burden and the associated costs. Working cooperatively with insurance companies and other third party payors, more and more companies have access to medical claims data and can analyze the frequency and cost of illness by Diagnosis Related Group (DRG) or International Classification of Disease (ICD-9) codings. In the absence of claims or disability data, the number of cancer cases and the impact of cancer on a company can be estimated from Table 9. While Table 9 is a rough approximation that was developed for community estimation, it should give large companies an approximation of their annual cancer statistics.

After companies have an idea of the number of expected cancer cases, they should decide which of the recommended actions will be their priority and then develop a plan to accomplish their objective. An effective and well managed program should identify the number of employees at risk for the particular cancer problem and the number of employees who are targeted for an intervention program. The process of setting goals and participation targets is well illustrated in Helping Your Employees to Protect Themselves Against Cancer (ACS, 1981).

Table 9

HOW TO ESTIMATE CANCER STATISTICS LOCALLY

COMMUNITY POPULATION	ESTIMATED NO. WHO ARE ALIVE, SAVED FROM CANCER	ESTIMATED NO. CANCER CASES UNDER MEDICAL CARE IN 1986	ESTIMATED NO. WHO WILL DIE OF CANCER IN 1986	ESTIMATED NO. OF NEW CASES IN 1986	ESTIMATED NO. WHO WILL BE SAVED FROM CANCER IN 1986	ESTIMATED NO. WHO WILL EVENTUALLY DEVELOP CANCER	ESTIMATED NO. WHO WILL DIE OF CANCER IF PRESENT RATES CONTINUE
1,000	10	5	1	3	1	280	180
2,000	20	11	4	7	3	560	360
3,000	30	16	5	10	4	840	540
4,000	40	21	7	13	5	1,120	720
5,000	50	26	9	16	6	1,400	900
10,000	100	52	18	33	12	2,800	1,800
25,000	250	131	45	79	30	7,000	4,500
50,000	500	162	90	158	59	14,000	9,000
100,000	1,000	525	180	325	122	28,000	18,000
200,000	2,000	1,050	360	650	244	56,000	36,000
500,000	5,000	2,625	900	1,575	590	140,000	90,000

NOTE: The figures can only be the roughest approximation of actual data for your community and should be used with caution. It is suggested that every effort be made to obtain actual data from a Registry source.

SOURCE: 1986: Cancer Facts and Figures, American Cancer Society, 1986.

Once objectives, priorities, and targets have been set, programs need to be developed and implemented. Cancer prevention and control programs should be voluntary and focus on behavior change, and the results should be kept confidential. Excellent programs and materials are available from the American Cancer Society and the National Cancer Institute to assist in this effort. In this regard, the American Cancer Society is particularly helpful in working with companies at the local level in planning, implementing, and evaluating cancer prevention and control activities.

Workplace cancer prevention and control programs should be innovative in their design and delivery. For example, UCLA, in cooperation with the California Division of the American Cancer Society, developed an innovative workplace cancer prevention program. The unique element of CHIP--Comprehensive Health Improvement Program--is that it integrates occupational cancer prevention with general cancer education and screening. One of the major CHIP modules is directed at blue collar workers and occupational exposure to carcinogens. Companion programs address the traditional cancer sites, as well as provide an overview of cancer risk reduction and personal responsibility. The CHIP materials are available from the California ACS.

In Boston, 15 local industries meet regularly under the aegis of the Massachusetts Division of the American Cancer Society to review materials and develop conferences on workplace cancer prevention. The chair of this committee reports that there has been "a phenomenal increase in adult cancer education at the workplace."

In California, the ACS committees that deal with prevention and education are working cooperatively with the service and rehabilitation committees. Their plan is to present an integrated and comprehensive cancer service to California

employers, which includes assistance to the employee who already has cancer--an issue that is all too often overlooked.

The following section describes other innovative and committed workplace cancer prevention and control programs.

COMPANY EXAMPLES--WORKPLACE CANCER PREVENTION PROGRAMS

Adolph Coors Company, Golden, CO
Max Morton or Doyle Albee
(303) 277-5465

The Adolph Coors Company offers a company-wide cancer education and prevention program. The Coors Wellness Center offers a seven-part lecture series with assistance from area doctors and local American Cancer Society staff. Breast self-examination workshops, held biweekly, consist of a film, discussion, and handouts. The company recently implemented "Coercions"--a program of free, on-site mammography.

Audiovisuals may be checked out free of charge for use at unit meetings and printed materials are also available. The goal of the program is to bring about an increased awareness of cancer prevention through positive lifestyle change.

AT&T, New York, NY
Rebecca Parkinson
(212) 605-6345

AT&T has a long and varied history in cancer prevention and control activities. Collaborating with the National Cancer Institute, AT&T pretested an innovative breast cancer early detection program. This program consisted of a slide/tape presentation and a palpable simulated breast model, and it was offered to groups of female employees on company time. While intended to increase knowledge and awareness, this program resulted in increases in breast self-examination practice as measured five months following program completion.

In addition to this early program, AT&T has integrated a cancer module into its comprehensive wellness program entitled Total Life Concept (TLC). This module emphasizes early detection and knowledge of the warning signs necessary to catch cancer early. In addition to this module, smoking cessation and nutrition education programs are integral components of Total Life Concept.

AT&T medical clinics throughout the country teach breast self examination (BSE) and offer Pap tests routinely to female employees. In addition, classes on smoking cessation, testicular self examination (TSE) and colorectal cancer are offered throughout the year. For example, an AT&T office in Oakton, Virginia, works closely with the Virginia Division of the American Cancer Society to provide smoking cessation and early detection programs. The Sandia Laboratories in Los Alamos, New Mexico, offers free mammography and proctoscopy to employees over 50 years of age as part of their Total Life Concept program.

U.S. Material Command, USAMC, Lexington, KY
Bob Dever
(606) 293-3250

The Material Readiness Support Activity of the U.S. Material Command employs 450 people and was preparing to implement a "Clean Air" policy effective November 1, 1985. Working with the Kentucky Division of the American Cancer Society, an education and smoking cessation program was established for the 200-plus employees who smoked. Of these smoking employees, 125 attended orientation programs and 30 attended a smoking cessation program. The Materials Readiness Support Activity continues to provide support for those employees who are trying to stop smoking and it has participated in the Great American Smokeout activities.

Campbell Soup, Camden, NJ
Lorraine L. Ansaldo, R.N.
(609) 342-4800

Campbell Soup Company has a longstanding commitment to health promotion and cancer prevention. Campbell Soup Company's cancer screening program includes mammograms for females over 35 years of age, professional breast exams, Pap testing, testing for occult blood in the stool, colonscopy and sigmoidoscopy after 45 years of age, prostate screening for males over 55 years of age, and bladder cancer screening.

In addition to these specific cancer screening procedures, Campbell Soup performs general health screening for employees as part of the periodic health examination performed by the corporate health staff.

CIGNA Corporation, Philadelphia, PA
Cynthia L. Chambers
(215) 241-3379

"Smoking in the Workplace" was designated as the number one health issue for CIGNA Corporation in 1985, according to Therman Evans, M.D., Corporate Medical Director. CIGNA kicked off its smoking awareness campaign by inviting Surgeon General C. Everett Koop, M.D., to address 500 employees on the health risks of smoking, women and smoking, and secondhand smoke. A steering committee made up of smokers and nonsmokers was formed to develop a smoking policy for the company. The policy, which restricts smoking in the company, should take effect in 1986. Five employees have been trained to conduct smoking cessation programs for the company and ex-smoker support groups meet monthly.

Commonwealth Edison, Chicago, IL
Kathleen Archibald, R.N.
(312) 294-8198

Commonwealth Edison has trained 24 regional health coordinators to plan and implement health awareness activities throughout the state of Illinois. These health coordinators are company employees who have been selected from the company's industrial relations and health services areas to help fellow employees gain a better perspective on their health care options. Cancer prevention and control activities are integrated throughout the health awareness activities and are highlighted in the company's quarterly newsletter.

Smoking cessation, nutrition, and breast health are some of the programs provided by Commonwealth Edison's team of health coordinators.

EXXON Chemical Americas, Houston, TX
James A. Hathaway, M.D.
(713) 870-6900

EXXON Chemical Americas is headquarterd in Houston and coordinates the health programs for the 8000 employees in smaller plants and sales offices throughout the United States and Latin America.

The major cancer control efforts are embedded in the periodic physical examinations that are provided to all employees based on age. These examinations include breast self-examination instruction, pelvic exam, and Pap smear for women. In addition, occult blood, a digital rectal, and a proctosigmoidoscopic exam are provided in some facilities, depending on the age of the employee. These cancer detection examinations provided as part of the periodic physical examination are integrated with EXXON's overall occupational health surveillance efforts.

Honeywell, Inc., Fort Washington, PA
Anne Kovacs, R.N.
(215) 641-3485

Honeywell's efforts exemplify <u>continuing</u> cancer education programs in the workplace. When the Honeywell Medical Department identified its health promotion priorities for the year, one of the first things done was to meet with representatives of the American Cancer Society.

In a one-year period, Honeywell set the ambitious goal of providing education and screening programs in seven cancer site areas and succeeded in reaching it. Teaming up with the Wissahickon Valley Unit of the American Cancer Society, Honeywell delivered BSE instruction and professional breast examinations,

TSE instruction, colorectal health education and stool blood testing, and oral cancer screening, and provided information on prostate and skin cancer.

All programs are voluntary and enthusiastically received. The local ACS unit reports that often there is standing room only for the one-hour educational sessions.

John Hancock Financial Services, Boston, MA
Christina Ryan
(617) 421-4485

John Hancock's cancer prevention and control programs serve the employees in the Boston home office and in the surrounding subsidiary offices. John Hancock's cancer control programs can be divided into two categories: (1) screening and early detection programs that are integral to its physical examination program and, (2) education and prevention programs that are part of its overall cancer education efforts.

The physical examination program has a been operational since 1955 and provides a comprehensive examination to all full-time employees over the age of 35 with one year of service. The exam is repeated periodically based on age and medical history. The examination is paid for by the company, done on-site and on company time. Approximately two-thirds of the eligible employees avail themselves of the program. The physical examination includes extensive cancer screening and early detection procedures including sigmoidoscopy and oral cancer screening in their on-site dental clinic.

The cancer education program emphasizes smoking cessation, breast health, and nutrition education. A "Menu" of smoking cessation opportunities is provided, ranging from trained company staff serving as cessation facilitators to self-help workbooks and videotape presentations. A breath ecolyzer is available to assist in smoking cessation and is used to demonstrate increased carbon monoxide levels among smokers. A smoking policy was recently implemented to supplement the smoking cessation efforts.

In addition to the employee cancer education programs, John Hancock recently opened its doors to the community and has offered five "community forums" on cancer prevention and control. These programs are held during lunch hours, are open to the general public, and have been extremely well-received.

Kansas Department of Social and Rehabilitation Services, Topeka, KS
Ron Alexander
(913) 296-3925

The Kansas Department of Social and Rehabilitation Services identified smoking cessation as a health program priority. Over 50 employees were trained by the Kansas Division of the American Cancer Society to be smoking cessation facilitators and they have returned to their workplaces to conduct "Fresh Start," the smoking cessation program of the American Cancer Society. During the first quarter of the program, over 600 people participated. Besides facilitating smoking cessation programs for their fellow employees, each trained employee has also agreed to cooperate with the local ACS unit in serving as a smoking cessation volunteer.

Kohler Company, Kohler, WI
Sandy Bawden
(414) 457-4441; ext. 7417

The Kohler Company employs 5,200 people in southeastern Wisconsin. During the fall of 1985, an educational mailing was done to all employees and spouses over age 40. It was provided by the corporate public relations Department through the employee newsletter and included general information about colorectal cancer, its incidence, and early detection options. One week later, a second mailing included a stool bloodtest kit. In addition, medical department staff were trained so they could answer employee questions on colorectal cancer and the test kit. To date, of 23 positive test results, four were considered false positives and 19 detected a variety of health problems, including polyps and one early cancer.

M & M Mars, Chicago, IL
Phyllis Martinec, R.N.
(312) 637-3000

When the management of M & M Mars, Inc., learned about the importance of mammography, they gave their 120 female employees a health gift: free mammograms and breast examinations along with educational programs and materials. Eighteen mammograms proved to be suspicious and seven resulted in biopsies.

One year later, the company reminded those female employees over 50 years of age that it was time to repeat the mammogram. This time the employee paid for the service, but the company provided bus service to the hospital. Both programs were considered to be successful.

The year after the program, preventive procedures were included in the company health plan.

Pacific Bell, San Francisco, CA
Jackie Wood, Sc.D.
(415) 542-1822

Pacific Bell is the largest private employer in the state of California and is actively involved in employee wellness programs. In cooperation with the California Division of the American Cancer Society, Pacific Bell conducted a Breast Health Program that taught over 6000 female employees on company time the proper method of breast self-examination. A six-month follow up evaluation revealed that program participants, as compared to a non-participating control group, increased the frequency and quality of their BSE practice at six months following the program. In 1985, the Breast Health Program was awarded a National Honors Citation from the American Cancer Society.

In addition to the Breast Health Program, cancer control activities are conducted as part of the Health Assessment Program--a comprehensive health risk identification and counseling program conducted in the medical department.

Pacific Northwest Bell, Seattle, WA
Len Beil
(206) 345-2161

Pacific Northwest Bell (PNB) is the regional telephone operating company in the Washington - Oregon area and employs over 15,000. PNB has been investigating various ways of managing workplace smoking and in 1983 conducted a survey of employee smoking attitudes and behaviors. At the same time, PNB established a multi-disciplinary task force to study the smoking problem and make recommendations.

On July 15, 1985, it was announced that effective October 15, 1985, smoking would be prohibited in all PNB facilities, including private offices, open space areas, cafeterias, and lounges. This enlightened step made PNB one of the first and certainly the largest corporation in America to ban smoking on company premises. The policy was developed in conjunction with the involved unions and has been widely accepted by both smokers and non-smokers alike.

At the same time PNB introduced its new smoking policy, it also announced a free smoking cessation program for all employees, spouses, and dependents. Approximately 28 percent (1,175) of all smoking employees decided to avail themselves of the free smoking cessation program. In addition to the 1,175 employees, 323 spouses and dependents participated in the program. Acupuncture was the most popular program selected by employees, followed by hypnotism, behavior modification and aversion therapy. The average cost per participant was $142. PNB intends to evaluate the effectiveness of this program.

Premier Dental Products, Norristown, PA
Barbara Rizzo
(215) 277-3800

The management of Premier Dental Products requested the local ACS to set up a cancer risk assessment program in February, 1985. Based on the results of the group profile, two follow-up programs were planned for May, 1985: "Women's Health Issues" (cervical and endometrial cancer) and "Cancer Detection for Men" (testicular and prostate cancer).

These programs were considered to be successful and a series of cancer control and prevention programs are being planned for Premier Dental Products.

Raytheon Company, Waltham, MA
Cathy Schutt, R.N., M.S.
(617) 899-8400; ext. 4102

Raytheon is the largest private employer in the state of Massachusetts and has an extensive health screening and health education program for all employees. In cooperation with the International Brotherhood of Electrical Workers, Raytheon's management has implemented a physical examination program for all employees 35 years of age and over with repeat examinations every two years. The physical examination program is paid for by the company but conducted on the employee's own time. Company clinics are open from 2:00 p.m. to 8:00 p.m. Monday through Friday. Raytheon expects its 10,000th exam to be performed in summer, 1986, and it is estimated that over 50 percent of the eligible workforce has participated in the physical examination program.

Cancer screening and prevention are major components to Raytheon's program. Screening and health education interventions are designed to educate employees about cancer, to promote early detection of the disease, and to help employees find appropriate treatment, if necessary. Comprehensive screening for rectal, testicular, skin, oral, breast, and colon cancers is performed. In addition, a blood test and urinalysis is done. Sigmoidoscopy is done at the clinics and on-site mammography will begin in the fall. Program participants are followed up 12 weeks after their examination to determine if they complied with recommendations.

Sperry Corporation, McLean, VA
Lorraine McGuiness, R.N.
(703) 556-5000

Sperry Corporation offers its employees ongoing wellness programs, many of which include cancer prevention and detection. The McLean, Virginia, building houses over 900 white collar employees who are offered a variety of cancer-related programs.

The most significant programs are the smoking cessation efforts, which are offered to employees and their families. A smoking cessation program, as well as one-on-one counseling and Nicorette chewing gum programs, are available for employees.

In addition to smoking programs, Sperry offers continuing health education programs on breast self-examination, skin, uterine, lung, and colorectal cancer. Yearly physical assessments are offered, which include a stool-blood test and a TSE demonstration and exam at the Wellness Center. As a result of these programs, two malignant colorectal cancers have been found in the last two years and four persons had colonic polyps removed.

All of the programs are promoted company-wide with flyers, posters, in the company newsletter, and by word of mouth. The philosophy of Sperry is that with the proper education and encouragement, people will respond positively and they will alter their habits and lifestyles to live a healthier, happier life.

SPS Technologies, Jenkintown, PA
Jerry Creed
(215) 572-3046

At the main plant of SPS Technologies in Jenkintown, Pennsylvania, nearly 1,000 workers participated in free, voluntary health awareness programs. SPS, a multi-national company that makes high-strength fasteners (aerospace and industrial nuts and bolts) and materials handling equipment, has an aggressive prevention program for its employees.

"Vital Signs," which the company began five years ago, is a series of age-appropriate screenings involving a comprehensive medical profile, blood analysis, pulmonary function test, urinalysis, stool blood test, and vision test.

"We're interested in the people who work here at SPS...helping them avoid pain and suffering" notes Rock Groves, vice president of industrial relations. "It's hard to quantify money saved and pain avoided," Groves believes, "but several employees credit the program with saving their lives. Can you put a price on employee morale?"

Union Carbide, Danbury, CT
Debbie Lewis, M.A.
(203) 794-4667

The 2,600 employees at the corporate headquarters have a variety of cancer prevention and control programs to choose from as part of the overall corporate health promotion program. Union Carbide employees can either select cancer prevention activities (such as smoking cessation or nutritional counseling) from a menu of

wellness progrms, or receive cancer risk reduction messages as part of a comprehensive health management program. The comprehensive health management program integrates cancer prevention into general health promotion and encourages employees to become managers of their own health. The health management program, "Health Plus Fitness," educates employees on the importance of periodic screening tests, management of personal health records, and how to be a wise health care consumer--all important elements for cancer control and prevention.

In addition to the activities at corporate headquarters, various plants around the country are involved in cancer prevention programs. Three years ago, at the Seadrift Plant in Port Lavac, Texas, the plant medical director formed a cancer awareness subcommittee for the 1,200 employees. Over 20 percent of the employees participated in risk reduction and screening programs with appropriate follow-up performed by the medical department. In addition to the direct benefits, smoke-free work areas were expanded, cafeteria food was improved, and volunteers were recruited to be smoking cessation instructors.

Union Pacific Railroad, Omaha, NB
William P. Higgins, Vice President - Law
(402) 271-3849

With the strong backing of Union Pacific's medical directors, company officials felt a program on cancer warning signals and treatments with an update on cancer research would attract more workers than there was space in the 2,000 employee headquarters building. So, Union Pacific rented auditorium space at the Peter Kiewit Conference Center two blocks away.

Department directors were asked to allow workers an extended lunch period so they could attend the 45 minute education program and eat lunch. Extensive public information in two company publications, posters, and flyers built interest and attracted 800 workers to the noon sessions at the Kiewit Center. Later, a separate session was held for the shop workers. Speakers mounted a flat-bed car to address 400 shop employees gathered in a repair shed on a 90-degree day with no air conditioning.

United Rubber Workers International Union, Akron, OH
Leslie Clegg
(216) 376-6181

In 1983, the United Rubber Workers received a grant from the National Cancer Institute for a program entitled LIFE - Labor and Industry Focus on Education. The United Rubber Workers contracted with the University of North Carolina to develop a program that addressed both "workstyle" as well as "lifestyle" issues in relation to employee health. The University divided 24

industrial plants into comparison and intervention groups with the intention of determining which methods are most effective in increasing the awareness of workers of health problems and how to change unhealthy behaviors and unsafe work conditions.

In the intervention sites, programs were developed based on employee interests and assessment of workplace risks. Preliminary results indicate that employees are well aware of health risks in general, but don't feel personally at risk. It is hoped that the interventions developed for this program will serve as a model for other industrial worksites.

Upjohn Company, Kalamazoo, MI
Anna Stryd, R.N., COHN
(616) 323-4004

The Upjohn Company has been committed to employee health for many years. Early in 1980, a plan to offer employees various health promotion programs was implemented. One of the first programs offered was breast self-examination education for all female employees. Over 90 sessions were conducted for approximately 1,650 employees. Subsequent surveys showed long-term behavior change in the practice of BSE among participants.

Additional cancer education programs, including TSE, BSE, stool occult blood, and lung cancer prevention, have been included in the periodic health surveillance programs. Recently a mammography machine was purchased and all females are being offered a mammogram based on ACS guidelines.

A cancer screen also has been developed and will be offered to employees at least annually during cancer control month. Included in the screen is a computerized health risk appraisal specific for cancer, and exams for the early detection of skin, lymph, thyroid, mouth, prostate, genital, colorectal, genital-urinary, breast, and blood cancers. In addition, periodic smoking cessation classes are offered to employees and spouses. Smoking cessation quit rates are approxiamtely 40 percent at one year.

Valley National Bank of Arizona, Phoenix, AZ
Laverne "Johnny" Johnson
(602) 261-1439

Valley National Bank of Arizona made sure its employees received the colorectal cancer prevention message and learned how to detect colorectal cancer at its earliest possible stages. All of their 7,000 employees in the state were exposed to the program. Every branch received a video (produced by the bank) and each employee received a brochure. Employees were then encouraged to request a free stool blood test, which the bank provided and made arrangements to have read.

REPERENCES--WORKPLACE CANCER PREVENTION PROGRAMS

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RESOURCES--WORKPLACE CANCER PREVENTION PROGRAMS

Specific Worksite Materials and Programs

American Cancer Society
National Headquarters
90 Park Avenue
New York, NY 10016
(212) 599-8200

The American Cancer Society is a national voluntary health organizaiton of 2.5 million Americans dedicated to the control of cancer through research, public and professional education programs, and service to cancer patients. ACS national headquarters is in New York City with 58 chartered ACS Divisions and 3,242 Units located throughout the country.

An extensive selection of programs and educational materials is available at no cost and may be ordered from local ACS Units. The ACS has programs and materials specifically developed for the workplace.

Clearinghouse for Occupational Safety and Health Information
National Institute of Occupational Safety and Health
Technical Information Branch
4676 Columbia Parkway
Cincinnati, OH 45226
(513) 684-8326

The Clearinghouse provides technical information to NIOSH research programs and supplies information to others upon request.

National Cancer Institute
National Institutes of Health
Bethesda, MD 20892
(301) 496-5583

The National Cancer Institute (NCI) is the Federal Government's principal agency for research on cancer prevention, diagnosis, treatment, and rehabilitation, and for dissemination of information for the control of cancer. The Institute is one of eleven research Institutes and four Divisions that form the National Institutes of Health. Within NCI, several offices coordinate cancer prevention and control programs:

Division of Cancer Prevention and Control
(301) 496-6616
Plans and conducts basic and applied research aimed at reducing cancer incidence, morbidity and mortality.

Cancer Control Applications Branch
(301) 427-8777
Seeks to assure that research results are effectively applied in a timely manner to the nation's cancer control problems.

Health Promotion Sciences Branch
(301) 427-8656
Develops and administers an extramural interdisciplinary applied research program to identify, implement, and evaluate health promotion interventions in cancer prevention and control for the public at large and specific high-risk/high-need populations.

Office of Cancer Communications
(301) 496-6631
Goals are to provide information on all aspects of the cancer problem to all interested parties and to foster and coordinate a national cancer communications program designed to provide the public and health professionals with information they need to take more responsible health actions.

Information Projects Branch
(301) 496-6792
Develops materials and programs in response to cancer-related needs and concerns of the general public, health professionals and cancer patients and their families.

National Toxicology Program
National Institute of Environmental Health Sciences
M.D. B2-04, Box 12233
Research Triangle Park, NC 27709
(919) 541-3991

The National Toxicology Program develops and disseminates scientific information regarding potentially hazardous chemicals, including those that can cause cancer.

ODPHP Health Information Center
P.O. Box 1133
Washington, D.C. 20013-1133
(800) 336-4797

The Center, a service of the Office of Disease Prevention and Health Promotion, is a central source of information and referral for health questions from the public and health professionals. Also includes materials for employers on smoking and nutrition.

Office of Disease Prevention and Health Promotion
Public Health Service
Switzer Building - Room 2100
330 C Street, S.E.
Washington, D.C. 20201
(202) 245-7611

The Office works to promote health and prevent disease among Americans through oversight and support of Department of Health and Human Services initiatives and programs in prevention.

Office on Smoking and Health
Technical Information Center
Park Building, Room 1-10
5600 Fischers Lane
Rockville, MD 20857
(301) 443-1690

The Office on Smoking and Health produces and distributes a number of informational and educational materials. It also offers bibliographic and reference services to researchers and others.

Publication and Distribution Office
Occupational Safety and Health Administration
200 Constitution Avenue, N.W.
Room S4203
Washington, D.C. 20210
(202) 523-9667

The Office responds to inquiries from the general public, health professionals, industry, educational institutions, and other sources about a limited number of job-related carcinogens and toxic substances.

Washington Business Group on Health
229½ Pennsylvania Avenue, S.E.
Washington, D.C. 20003
(202) 547-6644

The Washington Business Group on Health (WBGH) is a private, non-profit membership organization that is concerned with the general relationship between business and health. WBGH represents many of America's largest corporations and provides consultation and technical assistance on a variety of health issues. In cooperation with the Office of Disease Prevention and Health Promotion, WBGH has produced the "WBGH Worksite Wellness Series," 14 reports on major health promotion and disease prevention topics.

Western Institute for Occupational and Environmental Sciences
2520 Milvia Street
Berkeley, CA 94704
(415) 845-6476

This non-profit, health research organization is designed to promote health and safety at work and in the general environment. Printed and audiovisual educational materials on health and the workplace are available for a nominal fee.

Women's Occupational Health Resource Center
Columbia University
School of Public Health and Comprehensive Cancer Center
21 Audubon Avenue, Third Floor
New York, NY 10032

The Center is a non-profit organization dedicated to workplace health and safety. The Center responds to inquiries about occupational hazards with comprehensive scientific and technical information.

General Cancer-Related Materials and Programs:

Cancer Communication System
National Cancer Institute
(800) 4-CANCER

A regional system of cancer information centers, which were established to assure that accurate, up-to-date information on cancer cause, prevention, detection, diagnosis, treatment, rehabilitation, and continuing care, is readily accessible to the public and health professionals. By calling the toll-free number, 800-4-CANCER, you will be automatically connected to the Cancer Information Service office serving your area.

Center for Health Promotion and Education
Centers for Disease Control
Building 1 South, Room SSB249
1600 Clifton Road, NE
Atlanta, GA 30333
(404) 329-3492

The Center for Health Promotion and Education provides leadership and program direction for the prevention of disease, disability, premature death, and unnecessary health problems through health education and other efforts.

Center for Science in the Public Interest
1501 16th Street, N.W.
Washington, D.C. 20036
(202) 332-9110

The Center is a private, non-profit organization that publishes a variety of educational materials for the general public on the topics of nutrition, health, and science.

Consumer Information Center
Pueblo, CO 81009
(303) 948-3334

The Consumer Information Center, a mail order operation, distributes consumer publications on topics such as children, food and nutrition, health, exercise and weight control. The Consumer Information Catalog is available free from the Center and must be used to identify publications being requested.

Environmental Law Institute
1616 P Street, N.W., Suite 200
Washington, D.C. 20036
(202) 328-5150

The Institute is a non-profit, national research center dedicated to the design of effective environmental policies and the improvement of institutional abilities to implement existing law and policy.

Food and Nutrition Information Center
National Agricultural Library Building
Room 304
Beltsville, MD 20705
(301) 344-3719

The Center serves the informational needs of professionals interested in nutrition education, food service management, and food technology. The Center acquires and lends books, journal articles, and audiovisual materials.

Leukemia Society of America
National Headquarters
733 Third Avenue
New York, NY 10017
(212) 573-8484

The Leukemia Society of America sponsors research studies of leukemia, lymphomas, and multiple myeloma. It also provides financial aid to patients.

National Audiovisual Center
National Archives
8700 Edgeworth Drive
Capitol Heights, MD 20743-3701
(301) 763-4385

The Center, a non-profit public service, is the central source for federally sponsored audiovisuals. The Center distributes more than 8,000 programs on over 600 topics, including cancer and the environment, breast cancer, cancer detection, and smoking. Costs for these audiovisuals and accompanying printed materials range from $50 to $350.

National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20892
(301) 496-6308 Public Information Section
(301) 496-6095 Reference Section

The National Library of Medicine collects, organizes, and disseminates both printed and audiovisual materials. The collection, technical and scientific in nature, is primarily for health professionals.

Public Information Center
Environmental Protection Agency
820 Quincy Street
Washington, D.C. 20011
(202) 829-3535

The Center provides materials on such topics as hazardous wastes, the school asbestos project, air and water pollution, pesticides and drinking water.

All About WBGH

The Washington Business Group on Health (WBGH), established in 1974, gives major employers a credible voice in the formulation of federal and state health policy. WBGH began with five companies and now works with more than 200 of the Fortune 500. WBGH members direct health care purchasing for 40 million of their employees, retirees and dependents.

In 1976, WBGH expanded to become the first national employer organization dedicated to medical care cost management. WBGH is an active participant in discussions, hearings and other aspects of the legislative and regulatory arena. It also serves as a reliable resource base providing information and expertise on a variety of health care issues and concerns as well as consulting to its members, government, other employers, health care providers, and the media.

WBGH, through its institutes and public policy division, provides long-range planning and analysis on many sensitive economic and social issues. As specific areas of need were identified, WBGH formed: the Institute on Aging, Work and Health; the Institute for Rehabilitation and Disability Management; the Institute on Organizational Health; and Family Health Programs. WBGH also publishes two magazines, *Business & Health* and *Corporate Commentary*, and other resource information, reports, studies, and surveys.

WGBH assists the business community through: the Policy Exchange telecommunications network; an annual conference to discuss new health policy issues, cost management strategies, benefit design solutions and health promotion ideas; formation of nationally recognized task forces on topics ranging from legal issues of interest to employers to tax policy; and numerous seminars on timely subjects such as AIDS and utilization data. WBGH has been instrumental in helping form over 35 local business health care coalitions across the country.